

(FILE 'USPAT' ENTERED AT 09:23:56 ON 04 DEC 1998)

L1	51 SEA (ACQUIRED RESISTANCE) (P) (CDNA# OR DNA# OR GENE# OR N
UCL	EIC)
L2	22 SEA (ACQUIRED RESISTANCE) (6A) (CDNA# OR DNA# OR GENE# OR
NUC	LEIC)
L3	

FILE 'USPAT' ENTERED AT 09:23:56 ON 04 DEC 1998

* W E L C O M E T O T H E *
* U . S . P A T E N T T E X T F I L E *

=> s (acquired resistance) (p) (cdna# or dna# or gene# or nucleic)

35393 ACQUIRED
506433 RESISTANCE
282 ACQUIRED RESISTANCE
(ACQUIRED(W)RESISTANCE)
10661 CDNA#
28244 DNA#
22820 GENE#
19695 NUCLEIC
L1 51 (ACQUIRED RESISTANCE) (P) (CDNA# OR DNA# OR GENE# OR NUCLEI
C)

=> s (acquired resistance) (6a) (cdna# or dna# or gene# or nucleic)

35393 ACQUIRED
506433 RESISTANCE
282 ACQUIRED RESISTANCE
(ACQUIRED(W)RESISTANCE)
10661 CDNA#
28244 DNA#
22820 GENE#
19695 NUCLEIC
L2 22 (ACQUIRED RESISTANCE) (6A) (CDNA# OR DNA# OR GENE# OR NUCLE
IC)

=> d ti 1-22

US PAT NO:	5,804,693 [IMAGE AVAILABLE]	L2: 1 of 22
TITLE:	Chemically regulatable and anti-pathogenic DNA sequences and uses thereof	
US PAT NO:	5,792,904	L2: 2 of 22
TITLE:	Method for breeding disease resistance into plants	
US PAT NO:	5,789,214 [IMAGE AVAILABLE]	L2: 3 of 22
TITLE:	Method of inducing gene transcription in a plant	
US PAT NO:	5,777,200 [IMAGE AVAILABLE]	L2: 4 of 22
TITLE:	Chemically regulatable and anti-pathogenic DNA sequences and uses thereof	
US PAT NO:	5,776,889 [IMAGE AVAILABLE]	L2: 5 of 22
TITLE:	Hypersensitive response induced resistance in plants	
US PAT NO:	5,767,369 [IMAGE AVAILABLE]	L2: 6 of 22
TITLE:	DNA sequences encoding SAR8.2 proteins and uses thereof	
US PAT NO:	5,736,326 [IMAGE AVAILABLE]	L2: 7 of 22
TITLE:	Method of detecting resistance to chemo therapeutic agents	

in cancer patients

US PAT NO:	5,689,044 [IMAGE AVAILABLE]	L2: 8 of 22
TITLE:	Chemically inducible promoter of a plant PR-1 gene	
US PAT NO:	5,654,414 [IMAGE AVAILABLE]	L2: 9 of 22
TITLE:	Chemically inducible promoter of a cucumber chitinase/lysozyme gene	
US PAT NO:	5,650,505 [IMAGE AVAILABLE]	L2: 10 of 22
TITLE:	Chemically regulatable and anti-pathogenic DNA sequences and uses thereof	
US PAT NO:	5,646,011 [IMAGE AVAILABLE]	L2: 11 of 22
TITLE:	Cisplatin resistance gene and uses therefor	
US PAT NO:	5,614,395 [IMAGE AVAILABLE]	L2: 12 of 22
TITLE:	Chemically regulatable and anti-pathogenic DNA sequences and uses thereof	
US PAT NO:	5,371,003 [IMAGE AVAILABLE]	L2: 13 of 22
TITLE:	Electrotransformation process	
US PAT NO:	5,320,955 [IMAGE AVAILABLE]	L2: 14 of 22
TITLE:	10'desmethoxystreptonigrin production by Streptomyces albus	
US PAT NO:	5,312,735 [IMAGE AVAILABLE]	L2: 15 of 22
TITLE:	Supersecreting mutants of saccharomyces cerevisiae	
US PAT NO:	5,166,140 [IMAGE AVAILABLE]	L2: 16 of 22
TITLE:	Use of certain nucleoside analogs to attenuate cancer cell resistance to DNA damaging chemotherapy	
US PAT NO:	5,158,960 [IMAGE AVAILABLE]	L2: 17 of 22
TITLE:	10'-Desmethoxystreptonigrin	
US PAT NO:	5,057,422 [IMAGE AVAILABLE]	L2: 18 of 22
TITLE:	Recombinant DNA: transformed microorganisms, plant cells and plants: a process for introducing an inducible property in plants, and a process for producing a polypeptide or protein by means of plants or plant cells	
US PAT NO:	5,034,322 [IMAGE AVAILABLE]	L2: 19 of 22
TITLE:	Chimeric genes suitable for expression in plant cells	
US PAT NO:	4,418,194 [IMAGE AVAILABLE]	L2: 20 of 22
TITLE:	DNA Fragments for forming plasmids	
US PAT NO:	4,376,164 [IMAGE AVAILABLE]	L2: 21 of 22
TITLE:	Process for preparing broad host range small plasmid rings as cloning vehicles	
US PAT NO:	4,374,200 [IMAGE AVAILABLE]	L2: 22 of 22
TITLE:	Broad host range small plasmid rings as cloning vehicles	

=> s 12 (p) plant#

147921 PLANT#

L3 13 L2 (P) PLANT#

=> d ti 1-33

13 ANSWERS ARE AVAILABLE. SPECIFIED ANSWER NUMBER EXCEEDS ANSWER SET
SIZE

ENTER ANSWER NUMBER OR RANGE (1):end

=> d ti 1-13

US PAT NO:	5,804,693 [IMAGE AVAILABLE]	L3: 1 of 13
TITLE:	Chemically regulatable and anti-pathogenic DNA sequences and uses thereof	
US PAT NO:	5,792,904	L3: 2 of 13
TITLE:	Method for breeding disease resistance into plants	
US PAT NO:	5,789,214 [IMAGE AVAILABLE]	L3: 3 of 13
TITLE:	Method of inducing gene transcription in a plant	
US PAT NO:	5,777,200 [IMAGE AVAILABLE]	L3: 4 of 13
TITLE:	Chemically regulatable and anti-pathogenic DNA sequences and uses thereof	
US PAT NO:	5,776,889 [IMAGE AVAILABLE]	L3: 5 of 13
TITLE:	Hypersensitive response induced resistance in plants	
US PAT NO:	5,767,369 [IMAGE AVAILABLE]	L3: 6 of 13
TITLE:	DNA sequences encoding SAR8.2 proteins and uses thereof	
US PAT NO:	5,689,044 [IMAGE AVAILABLE]	L3: 7 of 13
TITLE:	Chemically inducible promoter of a plant PR-1 gene	
US PAT NO:	5,654,414 [IMAGE AVAILABLE]	L3: 8 of 13
TITLE:	Chemically inducible promoter of a cucumber chitinase/lysozyme gene	
US PAT NO:	5,650,505 [IMAGE AVAILABLE]	L3: 9 of 13
TITLE:	Chemically regulatable and anti-pathogenic DNA sequences and uses thereof	
US PAT NO:	5,614,395 [IMAGE AVAILABLE]	L3: 10 of 13
TITLE:	Chemically regulatable and anti-pathogenic DNA sequences and uses thereof	
US PAT NO:	5,371,003 [IMAGE AVAILABLE]	L3: 11 of 13
TITLE:	Electrotransformation process	
US PAT NO:	5,057,422 [IMAGE AVAILABLE]	L3: 12 of 13
TITLE:	Recombinant DNA: transformed microorganisms, plant cells and plants: a process for introducing an inducible property in plants, and a process for producing a polypeptide or protein by means of plants or plant cells	
US PAT NO:	5,034,322 [IMAGE AVAILABLE]	L3: 13 of 13
TITLE:	Chimeric genes suitable for expression in plant cells	

=> d bib ab 1-13

US PAT NO:	5,804,693 [IMAGE AVAILABLE]	L3: 1 of 13
DATE ISSUED:	Sep. 8, 1998	
TITLE:	Chemically regulatable and anti-pathogenic DNA sequences and uses thereof	
INVENTOR:	Thomas D. Gaffney, Chapel Hill, NC John A. Ryals, Cary, NC Leslie B. Friedrich, Apex, NC Scott J. Uknes, Apex, NC	

Eric R. Ward, Durham, NC
Helmut Kessmann, Allschwil, Switzerland
Bernardus T. Vernooij, Raleigh, NC
ASSIGNEE: Novartis Finance Corporation, New York, NY (U.S. corp.)
APPL-NO: 08/454,876
DATE FILED: May 31, 1995
ART-UNIT: 162
PRIM-EXMR: Bruce R. Campell
LEGAL-REP: J. Timothy Meigs

US PAT NO: 5,804,693 [IMAGE AVAILABLE]

L3: 1 of 13

ABSTRACT:

The present invention provides chemically regulatable DNA sequences capable of regulating transcription of an associated DNA sequence in plants or plant tissues, chimeric constructions containing such sequences, vectors containing such sequences and chimeric constructions, and transgenic plants and plant tissues containing these chimeric constructions. In one aspect, the chemically regulatable DNA sequences of the invention are derived from the 5' region of genes encoding pathogenesis-related (PR) proteins. The present invention also provides anti-pathogenic sequences derived from novel cDNAs coding for PR proteins which can be genetically engineered and transformed into plants to confer enhanced resistance to disease. Also provided is a method for the exogenous regulation of gene expression in plants, which comprises obtaining a plant incapable of regulating at least one gene or gene family, or at least one heterologous gene, due to the deactivation of at least one endogenous signal transduction cascade which regulates the gene in the plant, and applying a chemical regulator to the plant at a time when expression of the gene is desired. A novel signal peptide sequence and corresponding DNA coding sequence is also provided. Further provided are assays for the identification and isolation of additional chemically regulatable DNA sequences and cDNAs encoding PR proteins and assays for identifying chemicals capable of exogenously regulating the chemically regulatable DNA sequences of the invention.

US PAT NO: 5,792,904
DATE ISSUED: Aug. 11, 1998
TITLE: Method for breeding disease resistance into plants
INVENTOR: John A. Ryals, Cary, NC
Scott J. Uknes, Apex, NC
Terrence Patrick Delaney, Ithaca, NY
Eric R. Ward, Durham, NC
Henry-York Steiner, Raleigh, NC
ASSIGNEE: Novartis Finance Corporation, New York, NY (U.S. corp.)
APPL-NO: 08/648,949
DATE FILED: May 16, 1996
ART-UNIT: 183
PRIM-EXMR: Douglas W. Robinson
ASST-EXMR: Melissa L. Kimball
LEGAL-REP: J. Timothy Meigs

US PAT NO: 5,792,904

L3: 2 of 13

ABSTRACT:

Methods are provided for selecting parental **plants** having disease resistance and for using these **plants** in breeding programs. In one method of the invention, lesion mimic mutants are screened for either resistance to a pathogen of interest or for the expression of systemic **acquired resistance (SAR) genes**. Such mutants having the desired traits or expressing the desired genes are then used in breeding programs. Parent **plants** can also be selected based on the constitutive expression of SAR genes. These mutants are phenotypically normal yet exhibit a significant level of disease resistance. Also

disclosed are **plant** mutants that do not express systemic **acquired resistance genes** even when induced by a pathogen and methods of use for such mutants.

US PAT NO: 5,789,214 [IMAGE AVAILABLE] L3: 3 of 13
DATE ISSUED: Aug. 4, 1998
TITLE: Method of inducing gene transcription in a plant
INVENTOR: John A. Ryals, Durham, NC
Leslie B. Friedrich, Cary, NC
Scott J. Uknes, Apex, NC
Eric R. Ward, Basel, Switzerland
ASSIGNEE: Novartis Finance Corporation, New York, NY (U.S. corp.)
APPL-NO: 08/455,244
DATE FILED: May 31, 1995
ART-UNIT: 183
PRIM-EXMR: David T. Fox
LEGAL-REP: J. Timothy Meigs

US PAT NO: 5,789,214 [IMAGE AVAILABLE] L3: 3 of 13

ABSTRACT:

The present invention provides chemically regulatable DNA sequences capable of regulating transcription of an associated DNA sequence in plants or plant tissues, chimeric constructions containing such sequences, vectors containing such sequences and chimeric constructions, and transgenic plants and plant tissues containing these chimeric constructions. In one aspect, the chemically regulatable DNA sequences of the invention are derived from the 5' region of genes encoding pathogenesis-related (PR) proteins. The present invention also provides anti-pathogenic sequences derived from novel cDNAs coding for PR proteins which can be genetically engineered and transformed into plants to confer enhanced resistance to disease. Also provided is a method for the exogenous regulation of gene expression in plants, which comprises obtaining a plant incapable of regulating at least one gene or gene family, or at least one heterologous gene, due to the deactivation of at least one endogenous signal transduction cascade which regulates the gene in the plant, and applying a chemical regulator to the plant at a time when expression of the gene is desired. A novel signal peptide sequence and corresponding DNA coding sequence is also provided. Further provided are assays for the identification and isolation of additional chemically regulatable DNA sequences and cDNAs encoding PR proteins and assays for identifying chemicals capable of exogenously regulating the chemically regulatable DNA sequences of the invention.

US PAT NO: 5,777,200 [IMAGE AVAILABLE] L3: 4 of 13
DATE ISSUED: Jul. 7, 1998
TITLE: Chemically regulatable and anti-pathogenic DNA sequences
and uses thereof
INVENTOR: John A. Ryals, Durham, NC
Danny C. Alexander, Cary, NC
Robert M. Goodman, Madison, WI
Jeffrey R. Stinson, Davie, FL
ASSIGNEE: Novartis Finance Corporation, New York, NY (U.S. corp.)
APPL-NO: 08/455,416
DATE FILED: May 31, 1995
ART-UNIT: 187
PRIM-EXMR: Eggerton A. Campbell
LEGAL-REP: J. Timothy Meigs

US PAT NO: 5,777,200 [IMAGE AVAILABLE] L3: 4 of 13

ABSTRACT:

The present invention provides chemically regulatable DNA sequences

capable of regulating transcription of an associated DNA sequence in plants or plant tissues, chimeric constructions containing such sequences, vectors containing such sequences and chimeric constructions, and transgenic plants and plant tissues containing these chimeric constructions. In one aspect, the chemically regulatable DNA sequences of the invention are derived from the 5' region of genes encoding pathogenesis-related (PR) proteins. The present invention also provides anti-pathogenic sequences derived from novel cDNAs coding for PR proteins which can be genetically engineered and transformed into plants to confer enhanced resistance to disease. Also provided is a method for the exogenous regulation of gene expression in plants, which comprises obtaining a plant incapable of regulating at least one gene or gene family, or at least one heterologous gene, due to the deactivation of at least one endogenous signal transduction cascade which regulates the gene in the plant, and applying a chemical regulator to the plant at a time when expression of the gene is desired. A novel signal peptide sequence and corresponding DNA coding sequence is also provided. Further provided are assays for the identification and isolation of additional chemically regulatable DNA sequences and cDNAs encoding PR proteins and assays for identifying chemicals capable of exogenously regulating the chemically regulatable DNA sequences of the invention.

US PAT NO: 5,776,889 [IMAGE AVAILABLE] L3: 5 of 13
DATE ISSUED: Jul. 7, 1998
TITLE: Hypersensitive response induced resistance in plants
INVENTOR: Zhong-Min Wei, Ithaca, NY
Steven V. Beer, Ithaca, NY
ASSIGNEE: Cornell Research Foundation, Inc., Ithaca, NY (U.S. corp.)
APPL-NO: 08/891,254
DATE FILED: Jul. 10, 1997
ART-UNIT: 181
PRIM-EXMR: Robert J. Hill, Jr.
ASST-EXMR: Jennifer Harle
LEGAL-REP: Nixon, Hargrave, Devans & Doyle LLP

US PAT NO: 5,776,889 [IMAGE AVAILABLE] L3: 5 of 13

ABSTRACT:

The present invention relates to a method of imparting pathogen resistance to plants. This involves applying a hypersensitive response elicitor polypeptide or protein in a non-infectious form to a plant under conditions where the polypeptide or protein contacts cells of the plant. The present invention is also directed to a pathogen resistant plant and a composition for imparting pathogen resistance to plants.

US PAT NO: 5,767,369 [IMAGE AVAILABLE] L3: 6 of 13
DATE ISSUED: Jun. 16, 1998
TITLE: DNA sequences encoding SAR8.2 proteins and uses thereof
INVENTOR: John A. Ryals, Durham, NC
Danny C. Alexander, Cary, NC
Robert M. Goodman, Madison, WI
Jeffrey R. Stinson, Davie, FL
ASSIGNEE: Novartis Finance Corporation, New York, NY (U.S. corp.)
APPL-NO: 08/456,265
DATE FILED: May 31, 1995
ART-UNIT: 183
PRIM-EXMR: David T. Fox
LEGAL-REP: J. Timothy Meigs

US PAT NO: 5,767,369 [IMAGE AVAILABLE] L3: 6 of 13

ABSTRACT:

The present invention provides chemically regulatable DNA sequences

capable of regulating transcription of an associated DNA sequence in plants or plant tissues, chimeric constructions containing such sequences, vectors containing such sequences and chimeric constructions, and transgenic plants and plant tissues containing these chimeric constructions. In one aspect, the chemically regulatable DNA sequences of the invention are derived from the 5' region of genes encoding pathogenesis-related (PR) proteins. The present invention also provides anti-pathogenic sequences derived from novel cDNAs coding for PR proteins which can be genetically engineered and transformed into plants to confer enhanced resistance to disease. Also provided is a method for the exogenous regulation of gene expression in plants, which comprises obtaining a plant incapable of regulating at least one gene or gene family, or at least one heterologous gene, due to the deactivation of at least one endogenous signal transduction cascade which regulates the gene in the plant, and applying a chemical regulator to the plant at a time when expression of the gene is desired. A novel signal peptide sequence and corresponding DNA coding sequence is also provided. Further provided are assays for the identification and isolation of additional chemically regulatable DNA sequences and cDNAs encoding PR proteins and assays for identifying chemicals capable of exogenously regulating the chemically regulatable DNA sequences of the invention.

US PAT NO: 5,689,044 [IMAGE AVAILABLE] L3: 7 of 13
DATE ISSUED: Nov. 18, 1997
TITLE: Chemically inducible promoter of a plant PR-1 gene
INVENTOR: John A. Ryals, Durham, NC
Leslie B. Friedrich, Cary, NC
Scott J. Uknes, Apex, NC
Eric R. Ward, Basel, Switzerland
ASSIGNEE: Novartis Corporation, Summit, NJ (U.S. corp.)
APPL-NO: 08/449,043
DATE FILED: May 24, 1995
ART-UNIT: 183
PRIM-EXMR: David T. Fox
LEGAL-REP: J. Timothy Meigs

US PAT NO: 5,689,044 [IMAGE AVAILABLE] L3: 7 of 13

ABSTRACT:

The present invention provides chemically regulatable DNA sequences capable of regulating transcription of an associated DNA sequence in plants or plant tissues, chimeric constructions containing such sequences, vectors containing such sequences and chimeric constructions, and transgenic plants and plant tissues containing these chimeric constructions. In one aspect, the chemically regulatable DNA sequences of the invention are derived from the 5' region of genes encoding pathogenesis-related (PR) proteins. The present invention also provides anti-pathogenic sequences derived from novel cDNAs coding for PR proteins which can be genetically engineered and transformed into plants to confer enhanced resistance to disease. Also provided is a method for the exogenous regulation of gene expression in plants, which comprises obtaining a plant incapable of regulating at least one gene or gene family, or at least one heterologous gene, due to the deactivation of at least one endogenous signal transduction cascade which regulates the gene in the plant, and applying a chemical regulator to the plant at a time when expression of the gene is desired. A novel signal peptide sequence and corresponding DNA coding sequence is also provided. Further provided are assays for the identification and isolation of additional chemically regulatable DNA sequences and cDNAs encoding PR proteins and assays for identifying chemicals capable of exogenously regulating the chemically regulatable DNA sequences of the invention.

US PAT NO: 5,654,414 [IMAGE AVAILABLE] L3: 8 of 13

DATE ISSUED: Aug. 5, 1997
TITLE: Chemically inducible promoter of a cucumber
chitinase/lysozyme gene
INVENTOR: John A. Ryals, Cary, NC
James J. Beck, Apex, NC
Leslie B. Friedrich, Cary, NC
ASSIGNEE: Novartis Finance Corporation, New York, NY (U.S. corp.)
APPL-NO: 08/444,803
DATE FILED: May 19, 1995
ART-UNIT: 183
PRIM-EXMR: David T. Fox
LEGAL-REP: J. Timothy Meigs

US PAT NO: 5,654,414 [IMAGE AVAILABLE]

L3: 8 of 13

ABSTRACT:

The present invention provides chemically regulatable DNA sequences capable of regulating transcription of an associated DNA sequence in plants or plant tissues, chimeric constructions containing such sequences, vectors containing such sequences and chimeric constructions, and transgenic plants and plant tissues containing these chimeric constructions. In one aspect, the chemically regulatable DNA sequences of the invention are derived from the 5' region of genes encoding pathogenesis-related (PR) proteins. The present invention also provides anti-pathogenic sequences derived from novel cDNAs coding for PR proteins which can be genetically engineered and transformed into plants to confer enhanced resistance to disease. Also provided is a method for the exogenous regulation of gene expression in plants, which comprises obtaining a plant incapable of regulating at least one gene or gene family, or at least one heterologous gene, due to the deactivation of at least one endogenous signal transduction cascade which regulates the gene in the plant, and applying a chemical regulator to the plant at a time when expression of the gene is desired. A novel signal peptide sequence and corresponding DNA coding sequence is also provided. Further provided are assays for the identification and isolation of additional chemically regulatable DNA sequences and cDNAs encoding PR proteins and assays for identifying chemicals capable of exogenously regulating the chemically regulatable DNA sequences of the invention.

US PAT NO: 5,650,505 [IMAGE AVAILABLE]

L3: 9 of 13

DATE ISSUED: Jul. 22, 1997
TITLE: Chemically regulatable and anti-pathogenic DNA sequences
and uses thereof
INVENTOR: John A. Ryals, Durham, NC
Danny C. Alexander, Cary, NC
James J. Beck, Cary, NC
John H. Duesing, Riehen, Switzerland
Robert M. Goodman, Madison, WI
Leslie B. Friedrich, Cary, NC
Christian Harms, Bad Krozingen, Federal Republic of
Germany
Frederich Meins, Jr., Reichen, Switzerland
Alice Montoya, deceased, late of Lake Stevens, WA, by
Terry Montoya, legal representative
Mary B. Moyer, Cary, NC
Jean-Marc Neuhaus, Basel, Switzerland
George B. Payne, Ann Arbor, MI
Christoph Sperisen, Dulliken, Switzerland
Jeffrey R. Stinson, Davie, FL
Scott J. Uknes, Apex, NC
Eric R. Ward, Basel, Switzerland
Shericca C. Williams, Cary, NC
ASSIGNEE: Novartis Corporation, Tarrytown, NY (U.S. corp.)
APPL-NO: 08/449,315

DATE FILED: May 24, 1995
ART-UNIT: 183
PRIM-EXMR: Patricia R. Moody
LEGAL-REP: J. Timothy Meigs

US PAT NO: 5,650,505 [IMAGE AVAILABLE]

L3: 9 of 13

ABSTRACT:

The present invention provides chemically regulatable DNA sequences capable of regulating transcription of an associated DNA sequence in plants or plant tissues, chimeric constructions containing such sequences, vectors containing such sequences and chimeric constructions, and transgenic plants and plant tissues containing these chimeric constructions. In one aspect, the chemically regulatable DNA sequences of the invention are derived from the 5' region of genes encoding pathogenesis-related (PR) proteins. The present invention also provides anti-pathogenic sequences derived from novel cDNAs coding for PR proteins which can be genetically engineered and transformed into plants to confer enhanced resistance to disease. Also provided is a method for the exogenous regulation of gene expression in plants, which comprises obtaining a plant incapable of regulating at least one gene or gene family, or at least one heterologous gene, due to the deactivation of at least one endogenous signal transduction cascade which regulates the gene in the plant, and applying a chemical regulator to the plant at a time when expression of the gene is desired. A novel signal peptide sequence and corresponding DNA coding sequence is also provided. Further provided are assays for the identification and isolation of additional chemically regulatable DNA sequences and cDNAs encoding PR proteins and assays for identifying chemicals capable of exogenously regulating the chemically regulatable DNA sequences of the invention.

US PAT NO: 5,614,395 [IMAGE AVAILABLE]

L3: 10 of 13

DATE ISSUED: Mar. 25, 1997

TITLE: Chemically regulatable and anti-pathogenic DNA sequences
and uses thereof

INVENTOR: John A. Ryals, Durham, NC
Danny C. Alexander, Cary, NC
James J. Beck, Cary, NC
John H. Duesing, Riehen, Switzerland
Robert M. Goodman, Madison, WI
Leslie B. Friedrich, Cary, NC
Christian Harms, Bad Krozingen, Federal Republic of
Germany
Frederich Meins, Jr., Reichen, Switzerland
Alice Montoya, deceased, late of Lake Stevens, WA, by
Terry Montoya, legal representative
Mary B. Moyer, Cary, NC
Jean-Marc Neuhaus, Basel, Switzerland
George B. Payne, Ann Arbor, MI
Christoph Sperisen, Dulliken, Switzerland
Jeffrey R. Stinson, Davie, FL
Scott J. Uknes, Apex, NC
Eric R. Ward, Basel, Switzerland
Shericca C. Williams, Cary, NC

ASSIGNEE: Ciba-Geigy Corporation, Tarrytown, NY (U.S. corp.)

APPL-NO: 08/181,271

DATE FILED: Jan. 13, 1994

ART-UNIT: 183

PRIM-EXMR: Patricia R. Moody

LEGAL-REP: J. Timothy Meigs, Andrea C. Walsh

US PAT NO: 5,614,395 [IMAGE AVAILABLE]

L3: 10 of 13

ABSTRACT:

The present invention provides chemically regulatable DNA sequences capable of regulating transcription of an associated DNA sequence in plants or plant tissues, chimeric constructions containing such sequences, vectors containing such sequences and chimeric constructions, and transgenic plants and plant tissues containing these chimeric constructions. In one aspect, the chemically regulatable DNA sequences of the invention are derived from the 5' region of genes encoding pathogenesis-related (PR) proteins. The present invention also provides anti-pathogenic sequences derived from novel cDNAs coding for PR proteins which can be genetically engineered and transformed into plants to confer enhanced resistance to disease. Also provided is a method for the exogenous regulation of gene expression in plants, which comprises obtaining a plant incapable of regulating at least one gene or gene family, or; at least one heterologous gene, due to the deactivation of at least one endogenous signal transduction cascade which regulates the gene in the plant, and applying a chemical regulator to the plant at a time when expression of the gene is desired. A novel signal peptide sequence and corresponding DNA coding sequence is also provided. Further provided are assays for the identification and isolation of additional chemically regulatable DNA sequences and cDNAs encoding PR proteins and assays for identifying chemicals capable of exogenously regulating the chemically regulatable DNA sequences of the invention.

US PAT NO: 5,371,003 [IMAGE AVAILABLE] L3: 11 of 13
DATE ISSUED: Dec. 6, 1994
TITLE: Electrotransformation process
INVENTOR: Lynn E. Murry, Portola Valley, CA
Ralph M. Sinibaldi, Fremont, CA
Paul S. Dietrich, Palo Alto, CA
Sharon C. H. Alfinito, Fremont, CA
ASSIGNEE: Sandoz Ltd., Basel, Switzerland (foreign corp.)
APPL-NO: 08/126,138
DATE FILED: Sep. 23, 1993
ART-UNIT: 184
PRIM-EXMR: Patricia R. Moody
LEGAL-REP: Lynn Marcus-Wyner, Allen E. Norris

US PAT NO: 5,371,003 [IMAGE AVAILABLE] L3: 11 of 13

ABSTRACT:

Novel processes for introducing DNA into plant material utilizing non-pulsed electric current, and plant cell lines, differentiated plant tissues and plants produced by said processes.

US PAT NO: 5,057,422 [IMAGE AVAILABLE] L3: 12 of 13
DATE ISSUED: Oct. 15, 1991
TITLE: Recombinant DNA: transformed microorganisms, plant cells and plants: a process for introducing an inducible property in plants, and a process for producing a polypeptide or protein by means of plants or plant cells
INVENTOR: John F. Bol, Oegstgeest, Netherlands
Bernardus J. C. Cornelissen, Leiden, Netherlands
Johannes A. L. van Kan, Oegstgeest, Netherlands
ASSIGNEE: Mogen International N.V., Leiden, Netherlands (foreign corp.)
Rijksuniversiteit Leiden, Leiden, Netherlands (foreign corp.)
APPL-NO: 07/327,340
DATE FILED: Mar. 22, 1989
ART-UNIT: 184
PRIM-EXMR: Elizabeth C. Weimar
ASST-EXMR: P. Rhodes
LEGAL-REP: Cooper & Dunham

ABSTRACT:

This invention relates to recombinant DNA comprising vector-DNA and a DNA sequence corresponding with, or relates to, a salicylate-inducible promoter of a GRP gene of plants, such as tobacco plants. The invention also relates to microorganisms, plant cells and plants transformed using the recombinant DNA, to a process for introducing an inducible property in plants and to a process for producing a polypeptide or protein, using plant cells and plants transformed using the recombinant DNA.

US PAT NO: 5,034,322 [IMAGE AVAILABLE]

L3: 13 of 13

DATE ISSUED: Jul. 23, 1991

TITLE: Chimeric genes suitable for expression in plant cells

INVENTOR: Stephen G. Rogers, Webster Groves, MO

Robert T. Fraley, Glendale, MO

ASSIGNEE: Monsanto Company, St. Louis, MO (U.S. corp.)

APPL-NO: 07/333,802

DATE FILED: Apr. 5, 1989

ART-UNIT: 184

PRIM-EXMR: Jacqueline Stone

ASST-EXMR: David T. Fox

LEGAL-REP: Dennis R. Hoerner, Jr., Thomas P. McBride, Howard C.
Stanley

US PAT NO: 5,034,322 [IMAGE AVAILABLE]

L3: 13 of 13

ABSTRACT:

This invention relates to chimeric genes which are capable of being expressed in plant cells. Such genes contain (a) a promoter region derived in a gene which is expressed in plant cells, such as the nopaline synthase gene; (b) a coding or structural sequence which is heterologous with respect to the promoter region; and (c) an appropriate 3' non-translated region. Such genes have been used to create antibiotic-resistant plant cells; they are also useful for creating herbicide-resistant plants, and plants which contain mammalian polypeptides.

(FILE 'USPAT' ENTERED AT 17:54:07 ON 04 DEC 1998)

L1 1 S (ANKYRIN REPEAT) (P) PLANT#
L2 1 S L1 AND RESISTANCE
L3 0 S (ANKYRIN REPEAT) (P) PLANT# (P) RESISTANCE

=> d l2 bib ab

US PAT NO: 5,623,054 [IMAGE AVAILABLE] L2: 1 of 1
DATE ISSUED: Apr. 22, 1997
TITLE: Crucifer AFT proteins and uses thereof
INVENTOR: Hong Zhang, Boston, MA
Howard M. Goodman, Newton Center, MA
ASSIGNEE: The General Hospital Corporation, Boston, MA (U.S. corp.)
APPL-NO: 08/266,451
DATE FILED: Jun. 23, 1994
ART-UNIT: 183
PRIM-EXMR: David T. Fox
ASST-EXMR: Elizabeth F. McElwain
LEGAL-REP: Fish & Richardson P.C.

US PAT NO: 5,623,054 [IMAGE AVAILABLE] L2: 1 of 1

ABSTRACT:

Purified DNA encoding crucifer AFT proteins and chimeric transcriptional activator proteins from such DNA are disclosed. Such proteins are also involved in plant defense mechanisms by interacting with proteins involved in protecting plants from pathogens. The recombinant polypeptides and fragments are useful in methods of modulating plant gene expression.

FILE 'BIOSIS, EMBASE, AGRICOLA, CA, WPIDS' ENTERED AT 09:59:50 ON
04 DEC 1998

L1 85 SEA ((ACQUIRED RESISTANCE) (6A) (DNA# OR CDNA# OR GENE#
 OR NUCLEIC)) (P) PLANT#

L2 63 DUP REM L1 (22 DUPLICATES REMOVED)

* * * * * STN Columbus * * * * *

FILE 'HOME' ENTERED AT 09:59:25 ON 04 DEC 1998

=> file biosis embase agricola ca wpids

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.15	0.15

FILE 'BIOSIS' ENTERED AT 09:59:50 ON 04 DEC 1998

COPYRIGHT (C) 1998 BIOSIS(R)

FILE 'EMBASE' ENTERED AT 09:59:50 ON 04 DEC 1998

COPYRIGHT (C) 1998 Elsevier Science B.V. All rights reserved.

FILE 'AGRICOLA' ENTERED AT 09:59:50 ON 04 DEC 1998

FILE 'CA' ENTERED AT 09:59:50 ON 04 DEC 1998

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

COPYRIGHT (C) 1998 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'WPIDS' ENTERED AT 09:59:50 ON 04 DEC 1998

COPYRIGHT (C) 1998 DERWENT INFORMATION LTD

=> s ((acquired resistance) (6a) (dna# or cdna# or gene# or nucleic)) (p)
plant#

PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED ') (P) PLANT#'

1 FILES SEARCHED...

2 FILES SEARCHED...

3 FILES SEARCHED...

L1 85 ((ACQUIRED RESISTANCE) (6A) (DNA# OR CDNA# OR GENE# OR
NUCLEIC)) (P) PLANT#

=> dup rem l1

PROCESSING COMPLETED FOR L1

L2 63 DUP REM L1 (22 DUPLICATES REMOVED)

=> d ti 1-63

L2 ANSWER 1 OF 63 CA COPYRIGHT 1998 ACS DUPLICATE 1

TI Acquired resistance NPR1 genes from Arabidopsis thaliana and
Nicotiana glutinosa and their use for genetic engineering

L2 ANSWER 2 OF 63 CA COPYRIGHT 1998 ACS DUPLICATE 2

TI Disease resistance genes and lesion mimic mutants in plants and
their use in the breeding of pathogen-resistant strains

L2 ANSWER 3 OF 63 CA COPYRIGHT 1998 ACS

TI Synergistic use of microbicides and strongly expressed systemic
acquired resistance genes in increasing
plant resistance to pathogens

L2 ANSWER 4 OF 63 CA COPYRIGHT 1998 ACS

TI Use of alleles of the NIM1 gene of Arabidopsis to improve levels of disease resistance in plants

L2 ANSWER 5 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS DUPLICATE 3
 TI Genetically engineered broad-spectrum disease resistance in tomato.

L2 ANSWER 6 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS DUPLICATE 4
 TI Generation of broad-spectrum disease resistance by overexpression of an essential regulatory **gene** in systemic **acquired resistance**.

L2 ANSWER 7 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS
 TI Induced resistance responses in maize.

L2 ANSWER 8 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS DUPLICATE 5
 TI Uncoupling PR gene expression from NPR1 and bacterial resistance: Characterization of the dominant arabidopsis cpr6-1 mutant.

L2 ANSWER 9 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS
 TI Isolation of new Arabidopsis mutants with enhanced disease susceptibility to Pseudomonas syringae by direct screening.

L2 ANSWER 10 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS
 TI Systemic induction of an Arabidopsis **plant** defensin gene promoter by tobacco mosaic virus and jasmonic acid in transgenic tobacco.

L2 ANSWER 11 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS
 TI Evaluation of chemical- and pathogen-induced resistance in Vitis vinifera against Plasmopara viticola.

L2 ANSWER 12 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS
 TI Systemic **acquired resistance** reduces race changes to major resistance **genes** in pepper.

L2 ANSWER 13 OF 63 CA COPYRIGHT 1998 ACS
 TI The genetic studies and molecular cloning of the Arabidopsis NPR1 gene: an important regulatory component in systemic acquired resistance

L2 ANSWER 14 OF 63 CA COPYRIGHT 1998 ACS
 TI The NIM1 gene involved in disease resistance in plants through systemic acquired resistance and its uses

L2 ANSWER 15 OF 63 CA COPYRIGHT 1998 ACS
 TI Characterization and expression of caffeoyl-coenzyme a 3-O-methyltransferase proposed for the induced resistance response of Vitis vinifera L

L2 ANSWER 16 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS
 TI Two PR1 genes from tomato are differentially regulated and reveal a novel mode of expression for a pathogenesis-related gene during the hypersensitive response and development.

L2 ANSWER 17 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS DUPLICATE 6
 TI The Arabidopsis NIM1 protein shows homology to the mammalian transcription factor inhibitor I-kappa-B.

L2 ANSWER 18 OF 63 CA COPYRIGHT 1998 ACS
 TI Modulation of ethylene production in transgenic tobacco

L2 ANSWER 19 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS
 TI New methods for isolating **genes** involved in the systemic **acquired resistance** (SAR) response.

L2 ANSWER 20 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS
 TI Disease resistance of **plants**.

L2 ANSWER 21 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS
 TI Novel resistances to four potyviruses in tuber-bearing potato species, and temperature-sensitive expression of hypersensitive resistance to potato virus Y.

L2 ANSWER 22 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS DUPLICATE 7
 TI The Arabidopsis NPR1 **gene** that controls systemic **acquired resistance** encodes a novel protein containing ankyrin repeats.

L2 ANSWER 23 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS
 TI **Gene** activation and signaling during systemic **acquired resistance** in potato.

L2 ANSWER 24 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS
 TI Genetic dissection of acquired resistance to disease.

L2 ANSWER 25 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS
 TI Ozone-induced responses in Arabidopsis thaliana: The role of salicylic acid in the accumulation of defense-related transcripts and induced resistance.

L2 ANSWER 26 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS
 TI Characterization of cauliflower mosaic virus (CaVV) resistance in virus-resistant ecotypes of Arabidopsis.

L2 ANSWER 27 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS
 TI Salicylic acid mediates elicitor-induced systemic acquired resistance, but not necrosis in tobacco.

L2 ANSWER 28 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS DUPLICATE 8
 TI Benzothiadiazole, a novel class of inducers of systemic **acquired resistance**, activates **gene** expression and disease resistance in wheat.

L2 ANSWER 29 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS DUPLICATE 9
 TI Salicylic acid potentiates defence **gene** expression in tissue exhibiting **acquired resistance** to pathogen attack.

L2 ANSWER 30 OF 63 CA COPYRIGHT 1998 ACS
 TI Molecular cloning and induction of .beta.-1,3-glucanase gene from Nicotiana glutinosa L

L2 ANSWER 31 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS
 TI The role of activated oxygen species in **plant** disease resistance.

L2 ANSWER 32 OF 63 CA COPYRIGHT 1998 ACS
 TI Physiological and molecular characteristics of elicitor-induced systemic acquired resistance in tobacco

L2 ANSWER 33 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS
 TI Characterization of hsr201 and hsr515, two tobacco genes preferentially expressed during hypersensitive reaction provoked by phytopathogenic bacteria.

L2 ANSWER 34 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS
 TI Systemic resistance in Arabidopsis thaliana induced by biocontrol bacteria.

L2 ANSWER 35 OF 63 CA COPYRIGHT 1998 ACS

TI Using nonviral genes to engineer virus resistance in plants

L2 ANSWER 36 OF 63 EMBASE COPYRIGHT 1998 ELSEVIER SCI. B.V.DUPLICATE 10

TI Chemically inducible promoters in transgenic plants.

L2 ANSWER 37 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS

TI Regulation of the expression of **plant** defence genes.

L2 ANSWER 38 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS

TI A useful weed put to work: Genetic analysis of disease resistance in *Arabidopsis thaliana*.

L2 ANSWER 39 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS DUPLICATE 11

TI A benzothiadiazole derivative induces systemic acquired resistance to tobacco.

L2 ANSWER 40 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS

TI Reduction of risk for growers: Methods for the development of disease-resistant crops.

L2 ANSWER 41 OF 63 CA COPYRIGHT 1998 ACS DUPLICATE 12

TI Systemic **acquired resistance genes** under the control of chemically-regulated promoters and their use in the development of pathogen resistant **plants**

L2 ANSWER 42 OF 63 CA COPYRIGHT 1998 ACS

TI Finding the missing pieces in the puzzle of plant disease resistance

L2 ANSWER 43 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS DUPLICATE 13

TI *Arabidopsis* signal transduction mutant defective in chemically and biologically induced disease resistance.

L2 ANSWER 44 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS

TI Suppression and restoration of lesion formation in *Arabidopsis* lsd mutants.

L2 ANSWER 45 OF 63 CA COPYRIGHT 1998 ACS

TI Characterization of tobacco plants expressing a bacterial salicylate hydroxylase gene

L2 ANSWER 46 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS DUPLICATE 14

TI A new elicitor of the hypersensitive response in tobacco: A fungal glycoprotein elicits cell death, expression of defence genes, production of salicylic acid, and induction of systemic acquired resistance.

L2 ANSWER 47 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS

TI Cholera toxin induces defense reactions and pathogen resistance in transgenic **plants**.

L2 ANSWER 48 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS DUPLICATE 15

TI Characterization of a pathogen-induced potato catalase and its systemic expression upon nematode and bacterial infection.

L2 ANSWER 49 OF 63 CA COPYRIGHT 1998 ACS

TI 2,6-Dichloroisonicotinic acid-induced resistance to pathogens without the accumulation of salicylic acid

L2 ANSWER 50 OF 63 CA COPYRIGHT 1998 ACS

TI Characterization of a rice gene induced by *Pseudomonas syringae* pv. *syringae*: Requirement for the bacterial *lemA* gene function

L2 ANSWER 51 OF 63 CA COPYRIGHT 1998 ACS DUPLICATE 16

TI Identification of genes involved in resistance to plant pathogens

and their use in the breeding of pathogen-resistant plants

L2 ANSWER 52 OF 63 CA COPYRIGHT 1998 ACS
TI Exogenous regulation of gene expression in plants by the elimination of a signal transduction pathway

L2 ANSWER 53 OF 63 CA COPYRIGHT 1998 ACS
TI Characterization of an Arabidopsis mutant that is nonresponsive to inducers of systemic acquired resistance

L2 ANSWER 54 OF 63 CA COPYRIGHT 1998 ACS
TI Acquired resistance in barley. The resistance mechanism induced by 2,6-dichloroisonicotinic acid is a phenocopy of a genetically based mechanism governing race-specific powdery mildew resistance

L2 ANSWER 55 OF 63 CA COPYRIGHT 1998 ACS
TI Acquired resistance signal transduction in Arabidopsis is ethylene independent

L2 ANSWER 56 OF 63 CA COPYRIGHT 1998 ACS
TI The molecular biology of systemic acquired resistance

L2 ANSWER 57 OF 63 CA COPYRIGHT 1998 ACS
TI Active oxygen species in the induction of plant systemic acquired resistance by salicylic acid

L2 ANSWER 58 OF 63 CA COPYRIGHT 1998 ACS
TI The molecular biology of systemic acquired resistance

L2 ANSWER 59 OF 63 CA COPYRIGHT 1998 ACS
TI Signal transduction in systemic acquired resistance

L2 ANSWER 60 OF 63 CA COPYRIGHT 1998 ACS
TI Acquired resistance in Arabidopsis

L2 ANSWER 61 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS
TI DIFFERENTIAL INDUCTION OF **ACQUIRED RESISTANCE** AND PR **GENE** EXPRESSION IN TOBACCO BY VIRUS INFECTION ETHEPHON TREATMENT UV LIGHT AND WOUNDING.

L2 ANSWER 62 OF 63 CA COPYRIGHT 1998 ACS
TI Coordinate gene activity in response to agents that induce systemic acquired resistance

L2 ANSWER 63 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS
TI ANTI VIRAL EFFECT OF 9 METHYL STREPTIMIDONE IN **PLANTS**.

=> d ibib ab 4 5 6 13 14 19 22 41

L2 ANSWER 4 OF 63 CA COPYRIGHT 1998 ACS
ACCESSION NUMBER: 129:93054 CA
TITLE: Use of alleles of the NIM1 gene of Arabidopsis to improve levels of disease resistance in plants
INVENTOR(S): Ryals, John Andrew; Lawton, Kay Ann; Uknes, Scott Joseph; Steiner, Henry-York; Hunt, Michelle Denise; Friedrich, Leslie Bethards; et al.
PATENT ASSIGNEE(S): Novartis A.-G., Switz.; Ryals, John Andrew; Lawton, Kay Ann; Uknes, Scott Joseph; Steiner, Henry-York
SOURCE: PCT Int. Appl., 206 pp.
CODEN: PIXXD2

	NUMBER	DATE
	-----	-----
PATENT INFORMATION:	WO 9826082 A1	19980618
DESIGNATED STATES:	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM	
	RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG	
APPLICATION INFORMATION:	WO 97-EP7012	19971212
PRIORITY APPLN. INFO.:	US 96-33177	19961213
	US 96-34379	19961227
	US 96-34382	19961227
	US 97-34730	19970110
	US 97-35022	19970110
	US 97-35021	19970110
	US 97-880179	19970620
DOCUMENT TYPE:	Patent	
LANGUAGE:	English	

AB A key **gene** in the SAR (systemic **acquired resistance**) pathway of Arabidopsis thaliana, the NIM1 (noninducible immunity 1) gene is cloned and characterized for use in increasing the strength of a broad spectrum response to **plant** disease. The NIM1 gene product is a structural homolog of the mammalian signal transduction factor I.kappa.B subclass .alpha.. Alleles of the gene that encode dominant-neg. regulators of the systemic acquired resistance (SAR) signal transduction pathway are described. These alleles confer a phenotype opposite to that of the nim1 mutant, i.e. the transgenic **plants** exhibit constitutive SAR gene expression and a constitutive immunity (CIM) phenotype. The gene was mapped to a region of chromosome 1 between the ngall1 gene and the SSLP marker ATHGENEA. Cosmids covering this region were used to further map the gene and to clone a wild-type allele by complementation. Progeny of Arabidopsis **plants** transformed with the cloned gene showed increased resistance to fungal pathogens.

L2 ANSWER 5 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS DUPLICATE 3
 ACCESSION NUMBER: 98:409224 BIOSIS
 DOCUMENT NUMBER: 01409224
 TITLE: Genetically engineered broad-spectrum disease resistance in tomato.
 AUTHOR(S): Oldroyd G E D; Staskawicz B J
 CORPORATE SOURCE: Dep. Plant Microbial Biol., Univ. California, Berkeley, CA 94720-3102, USA
 SOURCE: Proceedings of the National Academy of Sciences of the United States of America 95 (17). 1998. 10300-10305. ISSN: 0027-8424
 LANGUAGE: English

AB Resistance in tomato to the bacterial pathogen Pseudomonas syringae pathovar tomato requires Pto and Prf. Mutations that eliminate Prf show a loss of both Pto resistance and sensitivity to the organophosphate insecticide fenthion, suggesting that Prf controls both phenotypes. Herein, we report that the overexpression of Prf leads to enhanced resistance to a number of normally virulent bacterial and viral pathogens and leads to increased sensitivity to fenthion. These **plants** express levels of salicylic acid comparable to **plants** induced for systemic **acquired resistance** (SAR) and constitutively express pathogenesis related **genes**. These results suggest that the overexpression of Prf activates the Pto and Fen pathways in a

pathogen-independent manner and leads to the activation of SAR.
Transgene-induced SAR has implications for the generation of broad
spectrum disease resistance in agricultural crop **plants**.

L2 ANSWER 6 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS DUPLICATE 4
ACCESSION NUMBER: 98:309350 BIOSIS
DOCUMENT NUMBER: 01309350
TITLE: Generation of broad-spectrum disease resistance by
overexpression of an essential regulatory
**gene in systemic acquired
resistance.**
AUTHOR(S): Cao H; Li X; Dong X
CORPORATE SOURCE: Dev. Cell Mol. Biol. Group, Dep. Bot., Box 91000,
Duke Univ., Durham, NC 27708-1000, USA
SOURCE: Proceedings of the National Academy of Sciences of
the United States of America 95 (11). 1998.
6531-6536. ISSN: 0027-8424
LANGUAGE: English

AB The recently cloned NPR1 gene of Arabidopsis thaliana is a key
regulator of acquired resistance responses. Upon induction, NPR1
expression is elevated and the NPR1 protein is activated, in turn
inducing expression of a battery of downstream pathogenesis-related
genes. In this study, we found that NPR1 confers resistance to the
pathogens Pseudomonas syringae and Peronospora parasitica in a
dosage-dependent fashion. Overexpression of NPR1 leads to enhanced
resistance with no obvious detrimental effect on the **plants**
. Thus, for the first time, a single gene is shown to be a workable
target for genetic engineering of nonspecific resistance in
plants.

L2 ANSWER 13 OF 63 CA COPYRIGHT 1998 ACS
ACCESSION NUMBER: 128:71350 CA
TITLE: The genetic studies and molecular cloning of the
Arabidopsis NPR1 gene: an important regulatory
component in systemic acquired resistance
AUTHOR(S): Cao, Hui
CORPORATE SOURCE: Duke Univ., Durham, NC, USA
SOURCE: (1997) 140 pp. Avail.: UMI, Order No. DA9805294
From: Diss. Abstr. Int., B 1998, 58(8), 3988
DOCUMENT TYPE: Dissertation
LANGUAGE: English
AB Unavailable

L2 ANSWER 14 OF 63 CA COPYRIGHT 1998 ACS
ACCESSION NUMBER: 128:113033 CA
TITLE: The NIM1 gene involved in disease resistance in
plants through systemic acquired resistance and
its uses
INVENTOR(S): Ryals, John Andrew; Delaney, Terrence Patrick;
Friedrich, Leslie Bethards; Weymann, Kristianna;
Johnson, Jay Earl; Lawton, Kay Ann; Ellis,
Daniel Murray; et al.
PATENT ASSIGNEE(S): Novartis A.-G., Switz.; Ryals, John Andrew;
Delaney, Terrence Patrick; Friedrich, Leslie
Bethards; Weymann, Kristianna; Johnson, Jay Earl
SOURCE: PCT Int. Appl., 149 pp.
CODEN: PIXXD2

	NUMBER	DATE
	-----	-----
PATENT INFORMATION:	WO 9749822 A1	19971231
DESIGNATED STATES:	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ,	

PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR,
TT, UA, UG, US, UZ, VN, YU, AM, AZ, BY, KG, KZ,
MD, RU, TJ, TM
RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK,
ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR,
NE, NL, PT, SE, SN, TD, TG

APPLICATION INFORMATION: WO 97-EP1218 19970310
PRIORITY APPLN. INFO.: US 96-20272 19960621
US 96-24883 19960830
US 96-33177 19961213
US 96-773559 19961227
US 97-35022 19970110

DOCUMENT TYPE: Patent
LANGUAGE: English

AB The invention concerns the location and characterization of an Arabidopsis gene (designated NIM1) that plays a key role in the systemic acquired resistance (SAR) pathway and, in connection with chem. and biol. inducers, enables induction of SAR gene expression and broad spectrum disease resistance to plants. The gene may be of use in increasing pathogen resistance in plants. Null alleles (nim1) of the NIM1 gene cannot induce the SAR pathway, including genes for pathogenesis-related proteins. The gene was cloned using map-based cloning methods.

L2 ANSWER 19 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS

ACCESSION NUMBER: 97:381520 BIOSIS

DOCUMENT NUMBER: 99680723

TITLE: New methods for isolating **genes** involved in the systemic **acquired resistance** (SAR) response.

AUTHOR(S): Nimchuk Z; Kus J; Hutcheon C; Cameron R K

CORPORATE SOURCE: Dep. Botany, Univ. Toronto, Toronto, ON, Canada

SOURCE: PLANT BIOLOGY '97: 1997 Annual Meetings of the American Society of Plant Physiologists and the Canadian Society of Plant Physiologists, Japanese Society of Plant Physiologists and the Australian Society of Plant Physiologists, Vancouver, British Columbia, Canada, August 2-6, 1997. Plant Physiology (Rockville) 114 (3 SUPPL.). 1997. 228. ISSN: 0032-0889

DOCUMENT TYPE: Conference

LANGUAGE: English

L2 ANSWER 22 OF 63 BIOSIS COPYRIGHT 1998 BIOSIS DUPLICATE 7

ACCESSION NUMBER: 97:87707 BIOSIS

DOCUMENT NUMBER: 99379420

TITLE: The Arabidopsis NPR1 **gene** that controls systemic **acquired resistance** encodes a novel protein containing ankyrin repeats.

AUTHOR(S): Cao H; Glazebrook J; Clarke J D; Volko S; Dong X

CORPORATE SOURCE: Dev. Cell Molecular Biol. Group, Dep. Botany, Duke Univ., Durham, NC 27708-1000, USA

SOURCE: Cell 88 (1). 1997. 57-63. ISSN: 0092-8674

LANGUAGE: English

AB The Arabidopsis NPR1 **gene** controls the onset of systemic **acquired resistance** (SAR), a **plant** immunity, to a broad spectrum of pathogens that is normally established after a primary exposure to avirulent pathogens. Mutants with defects in NPR1 fail to respond to various SAR-inducing treatments, displaying little expression of pathogenesis-related (PR) genes and exhibiting increased susceptibility to infections. NPR1 was cloned using a map-based approach and was found to encode a novel protein containing ankyrin repeats. The lesion in one npr1 mutant allele disrupted the ankyrin consensus sequence, suggesting that

Q4573.C38

these repeats are important for NPR1 function. Furthermore, transformation of the cloned wild-type NPR1 gene into npr1 mutants not only complemented the mutations, restoring the responsiveness to SAR induction with respect to PR-gene expression and resistance to infections, but also rendered the transgenic **plants** more resistant to infection by *P. syringae* in the absence of SAR induction.

L2 ANSWER 41 OF 63 CA COPYRIGHT 1998 ACS

DUPLICATE 12

ACCESSION NUMBER: 123:251744 CA

TITLE: Systemic **acquired resistance**

genes under the control of chemically-regulated promoters and their use in the development of pathogen resistant **plants**

INVENTOR(S): Ryals, John A.; Alexander, Danny C.; Uknes, Scott J.; Ward, Eric R.

PATENT ASSIGNEE(S): Ciba-Geigy A.-G., Switz.

SOURCE: PCT Int. Appl., 85 pp.

CODEN: PIXXD2

	NUMBER	DATE
	-----	-----
PATENT INFORMATION:	WO 9519443 A2	19950720
DESIGNATED STATES:	W: AM, AU, BB, BG, BR, BY, CA, CN, CZ, EE, FI, GE, HU, JP, KG, KP, KR, KZ, LK, LR, LT, LV, MD, MG, MN, MX, NO, NZ, PL, RO, RU, SI, SK, TJ, TT, UA, US, UZ, VN	
	RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG	
APPLICATION INFORMATION:	WO 95-IB2	19950103
PRIORITY APPLN. INFO.:	US 94-181271	19940113
DOCUMENT TYPE:	Patent	
LANGUAGE:	English	

AB **Plant SAR** (systemic **acquired resistance**

) **genes** under control of a chem.-regulated **plant** promoter are described for use in the construction of transgenic **plants** with an increased resistance to **plant** pathogens. Chem. inducible wheat genes, Arabidopsis chitinase IV, maize PR-1mz, and maize thaumatin PR-5mz are constructed and described. Differential screening methods for cloning SAR genes and chem. induced genes are also described. These genes include a no. that are transcribed in the absence of continuing protein synthesis. The preferred chem. regulatable promoter is from the Arabidopsis Pr-1 gene. A pair of genes for products that interact synergistically may be used to greatly increase the resistance of a transgenic **plant** to a pest.

* * * * * STN Columbus * * * * *

FILE 'HOME' ENTERED AT 17:47:52 ON 04 DEC 1998

=> file biosis embase agricola ca wpids

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	0.45	0.45

FILE 'BIOSIS' ENTERED AT 17:49:41 ON 04 DEC 1998
COPYRIGHT (C) 1998 BIOSIS(R)

FILE 'EMBASE' ENTERED AT 17:49:41 ON 04 DEC 1998
COPYRIGHT (C) 1998 Elsevier Science B.V. All rights reserved.

FILE 'AGRICOLA' ENTERED AT 17:49:41 ON 04 DEC 1998

FILE 'CA' ENTERED AT 17:49:41 ON 04 DEC 1998
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 1998 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'WPIDS' ENTERED AT 17:49:41 ON 04 DEC 1998
COPYRIGHT (C) 1998 DERWENT INFORMATION LTD

=> s (ankyrin repeat) (p) plant# (p) resistance

PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'REPEAT) (P) PLANT#'
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'PLANT# (P) RESISTANC'
3 FILES SEARCHED...

L1 4 (ANKYRIN REPEAT) (P) PLANT# (P) RESISTANCE

=> dup rem l1

PROCESSING COMPLETED FOR L1
L2 3 DUP REM L1 (1 DUPLICATE REMOVED)

=> d ti 1-3

L2 ANSWER 1 OF 3 CA COPYRIGHT 1998 ACS
TI Acquired resistance NPR1 genes from Arabidopsis thaliana and
Nicotiana glutinosa and their use for genetic engineering

L2 ANSWER 2 OF 3 BIOSIS COPYRIGHT 1998 BIOSIS DUPLICATE 1
TI Arabidopsis: A weed leading the field of **plant**-pathogen
interactions.

L2 ANSWER 3 OF 3 BIOSIS COPYRIGHT 1998 BIOSIS
TI Signalling pathways: A common theme in **plants** and animals?.

=> d ibib ab 1-3

L2 ANSWER 1 OF 3 CA COPYRIGHT 1998 ACS
ACCESSION NUMBER: 128:201804 CA

TITLE: Acquired resistance NPR1 genes from Arabidopsis thaliana and Nicotiana glutinosa and their use for genetic engineering

INVENTOR(S): Ausubel, Frederick M.; Glazebrook, Jane; Dong, Xinnian; Cao, Hui

PATENT ASSIGNEE(S): General Hospital Corporation, USA; Duke University

SOURCE: PCT Int. Appl., 128 pp.
CODEN: PIXXD2

	NUMBER	DATE
	-----	-----
PATENT INFORMATION:	WO 9806748 A1	19980219
DESIGNATED STATES:	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM	
	RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG	
APPLICATION INFORMATION:	WO 97-US13994	19970808
PRIORITY APPLN. INFO.:	US 96-23851	19960809
	US 97-35166	19970110
	US 97-46769	19970516

DOCUMENT TYPE: Patent

LANGUAGE: English

AB Genomic and cDNA sequences encoding **plant** acquired **resistance** proteins are provided from cruciferous (Arabidopsis thaliana) and solanaceous (Nicotiana glutinosa) **plants**. Npr mutants showed that the NPR1 gene of A. thaliana is active in controlling the defense response against a broad spectrum of pathogens, and the gene was cloned using a map-based positional cloning strategy. The NPR1 protein comprised 593 amino acid residues and contained **ankyrin-repeat** and G-protein coupled receptor motifs as well as nuclear localization signals. NPR1 mediates the expression of pathogenesis-related polypeptides. Expression of these polypeptides in transgenic **plants** are useful for providing enhanced defense mechanisms to combat **plant** diseases.

L2 ANSWER 2 OF 3 BIOSIS COPYRIGHT 1998 BIOSIS DUPLICATE 1

ACCESSION NUMBER: 98:186033 BIOSIS

DOCUMENT NUMBER: 01186033

TITLE: Arabidopsis: A weed leading the field of **plant-pathogen** interactions.

AUTHOR(S): Buell C R

CORPORATE SOURCE: Dep. Biol. Sci., Louisiana State Univ., Louisiana Agric. Exp. Stn., 508 Life Sciences, Baton Rouge, LA 70803, USA

SOURCE: Plant Physiology and Biochemistry (Paris) 36 (1-2). 1998. 177-186. ISSN: 0981-9428

LANGUAGE: English

AB Arabidopsis thaliana, like other flowering **plants**, exhibits specificity in **resistance** to **plant** pathogens. Using the genetic diversity present in differential accessions of Arabidopsis, over 49 loci which govern pathogen specificity have been identified. Similar to **resistance** genes from other **plant** species, the Arabidopsis RPS2, RPM1, and RPP5 **resistance** genes encode leucine-rich repeat proteins, suggesting that Arabidopsis behaves in a manner similar to other angiosperms in disease **resistance** mechanisms. Novel insights into events subsequent to pathogen recognition in

Arabidopsis have been obtained from analysis of mutants altered in defense. Not only have signal transduction pathways been deduced, but several genes involved in post-recognition events have been cloned using positional cloning methods. One such gene, NPR1, encodes an **ankyrin-repeat** protein with similarity to animal proteins which regulate the inflammatory response in mammalian cells and antifungal responses in Drosophila, suggesting an ancestral link in defense responses between the animal and **plant** kingdoms. NPR1 is not alone in providing novel insights into the mechanism(s) of disease **resistance**, the ein2 and his1 mutants have clearly demonstrated that ethylene has a role in **plant** defense, and the cloning of the LSD1 gene provides a molecular tool to examine reactive oxygen species in programmed cell death.

L2 ANSWER 3 OF 3 BIOSIS COPYRIGHT 1998 BIOSIS
 ACCESSION NUMBER: 97:201098 BIOSIS
 DOCUMENT NUMBER: 99500301
 TITLE: Signalling pathways: A common theme in **plants** and animals?.
 AUTHOR(S): Wilson I; Vogel J; Somerville S
 CORPORATE SOURCE: Carnegie Inst. Washington, Dep. Plant Biol., 290 Panama St., Stanford, CA 94305, USA
 SOURCE: Current Biology 7 (3). 1997. R175-R178. ISSN: 0960-9822
 LANGUAGE: English
 AB The unexpected notion that disease **resistance** mechanisms may use similar regulatory pathways to developmental processes has emerged from recent advances in understanding signal transduction pathways in insects, mammals and **plants**.

=> s (ankyrin repeat) (p) plant#

PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
 FIELD CODE - 'AND' OPERATOR ASSUMED 'REPEAT' (P) PLANT#'
 L3 11 (ANKYRIN REPEAT) (P) PLANT#

=> dup rem l3

PROCESSING COMPLETED FOR L3
 L4 7 DUP REM L3 (4 DUPLICATES REMOVED)

=> d ti 1-7

L4 ANSWER 1 OF 7 CA COPYRIGHT 1998 ACS
 TI Acquired resistance NPR1 genes from Arabidopsis thaliana and Nicotiana glutinosa and their use for genetic engineering

L4 ANSWER 2 OF 7 BIOSIS COPYRIGHT 1998 BIOSIS DUPLICATE 1
 TI Arabidopsis: A weed leading the field of **plant**-pathogen interactions.

L4 ANSWER 3 OF 7 BIOSIS COPYRIGHT 1998 BIOSIS
 TI Signalling pathways: A common theme in **plants** and animals?.

L4 ANSWER 4 OF 7 BIOSIS COPYRIGHT 1998 BIOSIS
 TI NUC-2, a component of the phosphate-regulated signal transduction pathway in Neurospora crassa, is an **ankyrin repeat** protein.

L4 ANSWER 5 OF 7 BIOSIS COPYRIGHT 1998 BIOSIS DUPLICATE 2
 TI Isolation of an ion channel gene from Arabidopsis thaliana using the H5 signature sequence from voltage-dependent K⁺ channels.

L4 ANSWER 6 OF 7 AGRICOLA

TI Expression of antisense or sense RNA of an ankyrin repeat-containing gene blocks chloroplast differentiation in Arabidopsis.

L4 ANSWER 7 OF 7 BIOSIS COPYRIGHT 1998 BIOSIS DUPLICATE 3

TI EXPRESSION OF ANTISENSE OR SENSE RNA OF AN **ANKYRIN**
REPEAT-CONTAINING GENE BLOCKS CHLOROPLAST DIFFERENTIATION IN
ARABIDOPSIS.

FILE 'BIOSIS, EMBASE, AGRICOLA, CA, WPIDS' ENTERED AT 17:49:41 ON
04 DEC 1998

L1	4 S (ANKYRIN REPEAT) (P) PLANT# (P) RESISTANCE
L2	3 DUP REM L1 (1 DUPLICATE REMOVED)
L3	11 S (ANKYRIN REPEAT) (P) PLANT#
L4	7 DUP REM L3 (4 DUPLICATES REMOVED)